

Application No. 09/715,935

REMARKS

Claims 18-38 and 62-73 are pending. By this amendment, claims 18, 27, 33 and 67 are amended to more particularly point out Applicants' claimed invention. The specification supports the amendment of claim 18, 27 and 67 with respect to the beam dump, for example, at page 35, lines 9-34. The specification supports the amendment of claim 33, for example, at page 56, line 20 to page 57, line 2. No new matter is introduced by the claim amendments.

Applicants acknowledge with appreciation the allowance of claims 71-73 and the allowability of claims 25 and 29-32. Applicants respectfully request reconsideration of the remaining rejections based on the above amendments and the following remarks.

Rejection Over 35 U.S.C. § 112

The Examiner rejected claims 27, 33-38 and 62-66 under 35 U.S.C. § 112, second paragraph for indefiniteness. With respect to claim 27, the Examiner noted a lack of antecedent basis for "the reactant inlet." Applicants thank the Examiner for a careful reading of the claim. Claim 27 has been amended to supply the antecedent basis for the phrase.

With respect to claim 33, the Examiner indicated that it was not clear if the phrase "characterized by a major axis and a minor axis" was referring to the cross section of the propagation direction. While Applicants maintain that it was clear that it was referring to the cross section in view of the specification, the claim has been amended for clarity. The Examiner further stated that "the relationship between the major and minor axis is uncertain." With all due respect, the Examiner's statement is unclear. However, it is clear from the specification and the plain meaning of the terminology that the cross section is not circular and has a longer dimension corresponding to the major axis that is longer than the dimension specified by the minor axis. In view of the amendment, Applicants maintain that the claims are clear and definite.

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In view of the above comments and clarifying amendments, Applicants respectfully request withdrawal of the rejection of claims 27, 33-38 and 62-66 under 35 U.S.C. § 112, second paragraph for indefiniteness.

Rejection Over Whitney et al.

The Examiner rejected claims 18-20, 22-24, 26-28, 62 and 64 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,043,548 to Whitney et al. (Whitney). The Examiner asserted that Whitney teaches a reactant stream that produces a product stream in the flow. Applicants respectfully assert that there are a couple of misunderstandings regarding Whitney with respect to the claimed invention. Nevertheless, Applicants have amended claims 18 and 27 to advance prosecution and to more particularly point out Applicants' claimed invention. Applicants respectfully request reconsideration of the rejection based on the following comments.

Claims 18 and 27 specify that "the particles are produced by the reaction," "the product stream comprises particles downstream from the radiation beam," and "the flow passes through the radiation beam." None of these conditions are met by Whitney. These quotes from the claim imply that the flow crosses the radiation beam. Whitney (see Figs. 1 and 2) teaches a beam directed at the substrate so that the flow goes along the laser beam and not across the laser beam. Also, Whitney teaches a melting of the materials in the flow not a chemical reaction. See, for example, column 6, lines 20-28. Since Whitney does not teach a chemical reaction forming particles or a flow crossing a radiation beam, Whitney does not teach the claimed invention.

In addition, Applicants have amended claims 18 and 27 to indicate that the radiation beam is directed to a beam dump. In contrast, Whitney teaches a laser beam that is directed at the substrate. Thus, Whitney teaches away from directing the laser to a beam dump.

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In view of the comments above, it is very clear that Whitney does not *prima facie* anticipate Applicants' claimed invention. Applicants respectfully request withdrawal of the rejection of claims 18-20, 22-24, 26-28, 62 and 64 under 35 U.S.C. § 102(b) as being anticipated by Whitney.

Rejection Over Whitney et al. and Rao et al.

The Examiner rejected claims 21, 63 and 65-70 under 35 U.S.C. § 103(a) as being unpatentable over Whitney in view of U.S. Patent 5,874,134 to Rao et al. (Rao). Whitney and Rao are both directed to plasma deposition approaches. The Examiner cited Rao for teaching heating and cooling the substrate as well as pumping on the chamber. Applicants note that Rao also makes up for other deficiencies of Whitney relating to reaction in the flow. However, Rao does not make up for the other deficiencies of Whitney. Thus, the combined teachings of Whitney and Rao do not render the claims *prima facie* obvious. Applicants respectfully request reconsideration of the rejections based on the following comments.

Initially, Applicants note that claim 21 depends from claim 18, and claims 63, 65 and 66 depend from claim 27. Claims 67-70 also indicate that "the product stream comprises particles downstream from the radiation beam," and "the flow passes through the radiation beam." The orientation of the plasma nozzle in Rao implies that the laser beam would be directed through the nozzle toward the substrate similar as shown in Whitney. Thus, both references teach a laser beam that is directed at the substrate along the flow. Thus, the flow does not pass through and cross the radiation beam. Similarly, the product flow does not extend downstream from the radiation beam since the flow goes along the beam.

Furthermore, Rao does not teach or suggest a radiation beam directed to a beam dump. Rao teaches a radiation beam directed at the substrate not a beam dump. All of the rejected claims specify a radiation beam directed to a beam dump.

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Whitney and Rao alone or combined do not teach all of the claim elements. Thus, the combined teachings of Whitney and Rao do not render Applicants' claimed invention *prima facie* obvious. See, for example, MPEP 2143. Applicants respectfully request withdrawal of the rejection of claims 21, 63 and 65-70 under 35 U.S.C. § 103(a) as being unpatentable over Whitney in view of Rao.

Rejections Over Akedo et al., Bi et al. and Rao et al.

The Examiner rejected claims 33-38 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,280,802 to Akedo et al. (Akedo), in view of U. S. Patent 5,958,348 to Bi et al. (Bi) and Rao. With all due respect, Applicants believe that there had been a misunderstanding of the previous claim language. Nevertheless, Applicants have amended the claim to more particularly point out Applicants' claimed invention. Specifically, Applicants have deleted the indication of the substrate being coated in one pass but have added language also found in claim 18 that the coating is formed of fused particles. In view of the amendment, the combined teachings of Akedo, Bi and Rao do not render Applicants' claimed invention *prima facie* obvious. Applicants respectfully request reconsideration of the rejection based on the following comments.

Claim 33 recites that the coating comprises fused particles. Bi clearly teaches away from forming a coating of fused particles since the entire objective of the process of the Bi patent is to harvest high quality particles as a powder. Also, Akedo teaches away from such an embodiment. See the Akedo abstract ("without being fused"), column 3, lines 4-12 ("without causing fusing or decomposition of the ultrafine particles"), column 4, lines 1-7, where it is taught to be undesirable to fuse the particles, and throughout Akedo. The Rao patent teaches the formation of nanostructured material through the use of a hypersonic jet. The Akedo patent and the Bi patent explicitly teach away from a combination with the Rao patent for the formation of a fused particle coating. Since the Akedo patent and the Bi patent explicitly teach away from the

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combination, the combined teachings of the Akedo patent, the Bi patent and the Rao patent clearly do not render claim 33 *prima facie* obvious.

Since the combined teachings of the cited references do not render Applicants' claimed invention *prima facie* obvious, Applicants respectfully request withdrawal of the rejection of claims 33-38 under 35 U.S.C. § 103(a) as being unpatentable over the Akedo patent, in view of the Bi patent and the Rao patent.

Rejections Over Akedo et al., Kambe et al., and Rao et al.

The Examiner rejected claims 33-38 under 35 U.S.C. §103(a) as being unpatentable over the Akedo patent in view of PCT Application WO 99/23189 to Kambe et al. (Kambe) and the Rao patent. Applicants have amended claim 33 to more particularly point out their claimed invention. The Board of Appeal, the first Examiner and Applicants all seem to agree that the Kambe application essentially teaches an equivalent process as the Bi patent with respect to the relevant claims. Since the combined disclosures of the Akedo patent, the Bi patent and the Rao patent do not render Applicants' presently claimed invention *prima facie* obvious, the combined disclosures of the Akedo patent, the Kambe application and the Rao patent similarly do not render Applicants' claimed invention *prima facie* obvious for the reasons discussed in detail above. Applicants respectfully request withdrawal of the rejection of claims 33-38 under 35 U.S.C. §103(a) as being unpatentable over the Akedo patent in view of the Kambe application and the Rao patent.

CONCLUSIONS

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

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The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,



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